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AUTHOR Goldstein, Brian A.; Iglesias, Aquiles
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ABSTRACT

Approximately 10 percent of Latino preschoolers are at risk for developing communication problems unrelated to second language acquisition. Many of these children are Spanish-speaking and have difficulties in producing speech sounds in their native language. One of the services afforded Latino preschoolers by speech-language pathologists is the assessment and treatment of phonological disorders. Providing these services is a challenge because many Latino children served are Spanish-speaking. The purpose of this paper is to provide normative data on phonological development and disorders in Spanish-speaking children and to briefly outline assessment and intervention techniques. Normative data are presented with regard to common and uncommon phonological patterns in Spanish-speaking preschool children. The paper then offers four principles to be followed when assessing the phonological skills of Spanish-speaking children: (1) use an assessment tool designed specifically to assess Spanish-speaking children; (2) take the child's dialect into account; (3) determine if the child's use of speech sounds is sufficiently different from normal development to warrant intervention; (4) determine treatment direction. The paper concludes with a discussion of treating phonological disorders in bilingual speakers. Contains 14 references. (EV)

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Phonological Production in Spanish-Speaking Preschoolers

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Running Head: PHONOLOGICAL PRODUCTION IN SPANISH SPEAKERS

Brian A. Goldstein, Ph.D., CCC-SLP
Temple University
Department of Communication Sciences
Philadelphia, PA 19122

Aquiles Iglesias, Ph.D., CCC-SLP
Temple University
Department of Communication Sciences
Philadelphia, PA 19122

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Address Correspondence To:

Brian A. Goldstein, PhD
Temple University
Department of Communication Sciences
109 Weiss Hall
Philadelphia, PA 19122
voice: (215) 204-7593
fax: (215) 204-5954
e-mail: *goldstba@nimbus.temple.edu*

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Abstract

Approximately 10% of Latino preschoolers are at-risk for developing communication problems that is unrelated to second language acquisition. Many of these children are Spanish-speaking and have difficulties in producing speech sounds in their native language. One of the services afforded Latino preschoolers by speech-language pathologists is the assessment and intervention of phonological disorders. Providing these services is a challenge because many Latino children served are Spanish-speaking. The purpose of this article is to provide normative data on phonological development and disorders in Spanish-speaking children and to outline briefly assessment and intervention techniques.

Introduction

It is predicted that by the year 2025 over 51 million individuals of Hispanic descent will reside in the U.S., an increase from 10.2% to 15.7% of the U.S. population (U.S. Bureau of the Census, 1995). Of the approximately 27 million Latinos residing currently in the U.S., over 3 million are under the age of 5, a number that will grow to over 5 million by the year 2025 (U.S. Bureau of the Census, 1995). One of the primary services afforded exceptional children in preschool programs by speech-language pathologists is the assessment of and intervention for phonological disorders (i.e., any difficulty in the production of speech sounds). It is estimated that phonological disorders affect 10% to 15% of preschoolers (Matthews & Frattali, 1990). Thus, given the present population of Latinos under the age of five, approximately 300,000 children are at-risk for developing phonological disorders. If current population trends continue, this number could increase to over 500,000 in the next 30 years. The provision of appropriate diagnostic and intervention services to Latino children with phonological disorders is more difficult because many of these children speak Spanish as their home language. Speech-language pathologists, preschool personnel (i.e., directors, teachers, coordinators), and families need to be aware of normative data on phonological development and disorders in Spanish speaking children. This knowledge will lead to appropriate referrals for and clinical management of phonological disorders in Latino children, particularly those who are Spanish speaking

The purpose of this paper is to provide comprehensive information on phonological production in Spanish-speaking preschool children. (For information on Spanish-speaking children of other ages, see Goldstein, 1995). Data to be presented from both normally developing children and those with phonological disorders will (a) allow preschool personnel, speech-language pathologists, and families to accurately identify Spanish-speaking children who are at-risk for exhibiting phonological disorders and (b) ensure appropriate assessment and intervention of phonological disorders by speech-language pathologists.

Normative Studies

The data presented in this article were culled from many of the available normative studies on phonological development in normally developing Spanish-speaking children and those with phonological disorders (e.g., Acevedo, 1993; de la Fuente, 1985; Goldstein & Iglesias, 1996a; 1996b). Figure 1 presents a summary of phonological development of typically developing Spanish-speaking preschoolers (adapted from Goldstein & Bleile, 1996).

Insert Figure 1 about here

The data collected from various sources are presented here in terms of *common phonological patterns* and *uncommon phonological patterns*.

Common Phonological Patterns in Spanish-Speaking Preschool Children

Data on the production of individual speech sounds suggest that normally developing Spanish-speaking children accurately produce most segments at a relatively early age (Maez, 1981). By the age of seven, only a few sounds, /x/ "j," /s/ "s," /ʧ/ "ch," /l/ "l," /ɾ/ "r," /r/ "rr," and consonant clusters are not mastered (i.e., produced accurately at least 90% of the time) (e.g., Acevedo, 1993; De la Fuente, 1985). Studies examining the use of phonological processes (i.e., error patterns) indicate that Spanish-speaking children have suppressed (i.e., no longer productively use) the majority of phonological processes by the time they reach 3 ½ years of age (e.g., Goldstein & Iglesias, 1996a; Stepanof, 1990).

Data from Goldstein and Iglesias (1996a; 1996b) indicate that commonly occurring phonological processes (evidenced more than 10% of the time) in the speech of Spanish-speaking preschoolers are *cluster reduction* (e.g., /plato/ "plate" › [pato]; "plato" › "pato"), *liquid simplification* (e.g., /roxo/ "red" › [loxo]; "rojo" › "lojo"), and *stopping* (e.g., /sopa/ "soup" › [topa]; "sopa" › "topa") in both normally developing children and those with phonological disorders. It should be noted that in children with phonological disorders, *initial consonant deletion* (e.g., /sopa/ "soup" › [opa]; "sopa" › "opa"), *weak syllable deletion* (e.g., /elefante/ "elephant" › [fante]; "elefante" › "fante"), and *velar fronting* (e.g., /boka/ "mouth" › [bota]; "boca" › "bota") approach the 10% mark (Goldstein & Iglesias, 1996b; Meza, 1983). Less commonly occurring processes (exhibited less than 10% of the time) exhibited by both groups of children include

palatal fronting (e.g., /amaɾijo/ "yellow" › [amaɾino]; "amarillo" › "amarino"), *assimilation* (e.g., /sopa/ "soup" › [popa]; "sopa" › "popa"), and *final consonant deletion* (e.g., /floɾ/ "flower" › [flo]; "flor" › "flo").

Uncommon Phonological Patterns in Spanish-Speaking Preschool Children

Normally developing children and those with phonological disorders also exhibit so-called unusual or uncommon phonological patterns (i.e., error patterns that are rarely exhibited). Some uncommon patterns are exhibited by both normally developing children and those with phonological disorders: *deaffrication* (e.g., /ʧiko/ "small" › [ʃiko]; "chico" › "shico"), *backing* (e.g., /dos/ "two" › [gos]; "dos" › "gos"), *spirantization* (e.g., /boka/ "mouth" › [ßoka]; "boca" › "woka"), and *denasalization* (e.g., /mesa/ "table" › [besa]; "mesa" › "besa"). A few patterns, *addition* (e.g., /raton/ "mouse" › [ranton]; "raton" › "ranton") and *palatalization*, (e.g., /tasa/ "cup" › [taʃa]; "taza" › "tasha") are witnessed in normally developing children but not in those with phonological disorders. Other patterns, however, are seen in those with phonological disorders but not in normally developing children: *lisping* (e.g., /ƙasa/ "house" › [kaθa]; "casa" › "catha"), *nasalization* (e.g., /dos/ "two" › [nos]; "dos" › "nos"), and *spirant deletion* (e.g., /jaße/ "key" › [jae]; "llave" › "llae").

Considerations in the Assessment of Spanish-Speaking Children

In assessing phonological skills of Spanish-speaking children, the following principles should be observed (adapted from Bankson & Bernthal, 1998).

1. Use an assessment tool designed specifically to assess Spanish-speaking children. Given the phonotactic differences between English and Spanish in terms of number of segments, type of segments, syllable structure, etc., the use of an assessment specific to Spanish must be employed. Translations of English tests into Spanish would not be a valid use of the English assessment.
2. Take the child's dialect into account. The consideration of dialect is paramount in the assessment of Spanish-speaking children. Analysis of phonological information must be made taking the child's dialect into account. Not accounting for dialect features may either result in the misdiagnosis of the phonological disorder or escalate the child's severity rating. "Errors" can only be counted as such when they are in conflict with the child's dialect. For example, in the Puerto Rican dialect of Spanish, the production of /dientes/ ("teeth") as [diente] would not be scored as an error because syllable-final /s/ is often deleted as a feature of the dialect. The production of /arbol/ ("tree") as [arbo], however, would be scored as an error because syllable-final deletion of /l/ is not considered a typical feature of the dialect.
3. Determine if the child's use of speech sounds is sufficiently different from normal development to warrant intervention. Thus, speech-language pathologists should differentiate between developmental errors, dialectal

differences, interference patterns, and true phonological errors.

4. Determine treatment direction. Speech-language pathologists should use intervention approaches that are consistent with best practices research.

Treating Phonological Disorders in Bilingual Speakers

Yavas & Goldstein (1998) suggested ways in which speech-language pathologists might choose specific treatment targets in bilingual speakers. First, treat error patterns that are exhibited with similar error rates in both languages. Speech-language pathologists initially would target patterns that affect intelligibility greatly in both languages and are likely to show similar error rates in both the first language and the second language (e.g., unstressed syllable deletion: e.g., /elefante/ "elephant" → [fante]; "elefante" → "fante"). Second, treat error patterns that are exhibited in both languages with unequal frequency. Speech-language pathologists would target error patterns that exist in both languages but are exhibited with unequal frequency. For example, *final consonant deletion* (e.g., /flor/ "flower" → [flo]; "flor" → "flo") is a phonological pattern that is likely to be exhibited in English (with a high percentage-of-occurrence) and in Spanish (with a low percentage-of-occurrence). Finally, treat phonological-patterns exhibited in only one language. Speech-language pathologists would then want to remediate error patterns that occur only in one language. For example, final consonant devoicing (e.g., /sed/ "thirsty" → [set]; "sed" → "set") may be exhibited by bilingual (Spanish-English) children and monolingual, English-speaking children but usually not monolingual, Spanish-speaking children.

Conclusions

The coming decades will see an increasing number of Spanish-speaking children enrolled in preschool programs in the United States. Approximately 10% of these children will exhibit phonological disorders that need to be referred by school personnel and families to speech-language pathologists for appropriate management. The assessment of and intervention for phonological disorders in Spanish-speaking children will be aided by the knowledge of phonological patterns exhibited in normally developing Spanish-speaking children and those with phonological disorders. Profiles of phonological development and disorders in Spanish-speaking children will ensure appropriate referrals for and valid clinical management of phonological disorders in Spanish-speaking children in preschool programs.

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Figure 1. Phonological development in Spanish-speaking children

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Acquisition by Age 4

- mastery (90% accurate) of vowels and many consonants
- consonants <u>not</u> typically mastered:
  a. /g, f, s, ɲ, flap ɾ (as in "mar**t**illo"), trill r (as in "**r**ojo")/, consonant clusters (**tr**en)

Acquisition by Age 5

- mastery of most consonants
- periodic errors on the following consonants:
  a. /ð, x (as in "relo**j**"), s, ɲ, ʧ, flap ɾ, trill r, l; consonant clusters/
- moderate occurrences of:
  a. cluster reduction: "**tr**en" → "**t**en"
  b. unstressed syllable deletion: "**ele**fante" → "fante"
  c. stridency deletion "**s**opa" → "**o**pa"
  d. tap/trill /r/ deviation "**r**ojo" → "**d**ojo"
- low occurrences of:
  a. fronting "bo**k**a" → "bo**t**a"
  b. prevocalic singleton omission "**d**os" → "**o**s"
  c. stopping "**s**opa" → "**t**opa"
  d. assimilation "**s**opa" → "**p**opa"

Acquisition by Age 7

- mastery of all consonants
- infrequent errors on:
  a. /x, s, ʧ, flap ɾ, trill r, l/, consonant clusters